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SOIL PROTECTION: DESERTIFICATION AND DROUGHT

Compilation on desertification and drought*

Intensifying activities involving afforestation and reforestation, soil-degradation control and assistance in biological resource management

I. BASIS FOR ACTION

1. Signs of desertification have multiplied continuously over the years, especially in regions where the natural ecosystems, being fragile, have been subjected to strong human pressure that far surpasses the production and even renewal capacities of the natural resources, particularly the soil, fauna and flora.

2. The reduction of the plant cover of the land as a result of steadily increasing drought and soil aridity and of human activities that have sometimes led to unsound management of soil and plant resources has been one of the direct causes of the spread of desertification and of soil degradation. These two phenomena, triggered by weather conditions and exacerbated by human intervention, are the symptoms of the radical instability that is currently characteristic of most of the fragile ecosystems in arid and semi-arid regions of the globe. The main aspects of these symptoms are a genetic depletion of the natural plant cover and a structural imbalance of the

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* Submitted by the Government of Tunisia.

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soil. It has proven indispensable to take these symptoms into account when acting to control desertification. Thus, the most proper approach is one that will invigorate the natural biological dynamics of plants and attenuate the factors that make for soil imbalance, through the establishment of large-scale afforestation and reforestation projects in those regions most in danger of desertification but where the land still has some biological potential left.

3. Such large-scale afforestation, which can be done in both woodlands and farmlands, would substantially help control the spread of symptoms of desertification and improve the structural equilibrium of the soil. Once it has taken root, the afforestation can, by altering the albedo of the soil, reduce the amount of energy reflected into the atmosphere and improve the carbon dioxide uptake capacity released on the Earth's surface; and this could have a directly beneficial impact that would counteract the greenhouse effect and the mechanisms behind climate change.

II. OBJECTIVES

4. When carrying out large-scale afforestation projects, woodland species must be used that have adapted to the difficult weather and soil conditions of the areas in question, and also farmland species in cases where it has proven necessary to develop new sources of subsistence for the rural population. These afforestation-reforestation projects can thus have two major objectives: protection or prevention and development.

(a) Objectives involving protection against the mechanisms of desertification and soil degradation:

(i) To combat wind velocity;

(ii) To stabilize the soil components and protect the land against any cause of surface stripping or of wind erosion and gullying;

(iii) To enhance the structural equilibrium of the soil and stimulate the cycle of organic matter in the soil;

(iv) To protect the surrounding areas against the dangers of sand encroachment, wind erosion and erosion;

(v) To improve the humidity conditions and attenuate the effects of the drought;

(b) Objectives involving development:

(i) To improve the socio-economic development conditions in neighbouring areas;

(ii) To offer, in the medium and long term, new grazing land and new lumber supply areas;

(iii) To improve farm production (in regions where the reforestation relies on farmland species like those that make up an oasis, for instance), which in turn helps improve social conditions and the struggle against poverty;

(iv) To create micro-climates favourable to the development of other human activities;

(v) To improve conditions for the conservation of biodiversity;

(c) Objectives involving preventive action against the spread of the greenhouse effect in the atmosphere:

(i) To reduce the quantities of energy reflected by the ground into the atmosphere;

(ii) To create new areas where the carbon dioxide released at the ground/atmosphere interface will be transformed into oxygen.

III. ACTIVITIES

5. The studies planned on this subject must be done first at the regional level by the regional and international organizations concerned. Studies to identify activities and programming studies must be done with the further assistance of the country or countries directly involved in the project.

(a) Studies and programming at the regional level:

(i) Selection of target areas, identification and delimitation of appropriate sectors as sites for afforestation or reforestation (woodland and/or farmland) projects; which target areas should, preferably, be situated in regions seriously affected by desertification or vulnerable to it (the Sudano-Sahelian region, the Maghreb, China, Latin America, etc.);

(ii) Elaboration of pre-project summaries for all sectors in which activities are planned and establishment of a timetable according to a list of priorities;

(b) Studies and programming at the national or binational level: elaborating operational projects in sectors of activity with the most priority, providing:

(i) A soil analysis for the overall sector of activity, with a classification and delimitation of the perimeters of development or afforestation on the basis of the kind of constraints to be found within each perimeter;

(ii) An analysis of the water requirements and possible sources of water supply needed to carry out the afforestation or reforestation (woodland and/or farmland projects);

(iii) An analysis of the plants needed and the areas of plant production and supply;

(iv) A definition of the proper approach to be followed bearing in mind the natural and human conditions and the existing and foreseeable constraints;

(v) An identification of the logistics (human, material, technical and other support) needed to start up the project;

(vi) The establishment of a timetable;

(vii) A cost estimate and proposed financing arrangements;

(c) Start-up and implementation:

(i) The start-up of afforestation-reforestation in each sector of activity constitutes a separate project;

(ii) The successful start-up of the projects selected depends on the following conditions: (a) activities under the project should be among the priorities in the economic and social development plans of the beneficiary country or countries and consequently the material, human and technical support for project activities in the country or countries must be made as readily available as possible; and (b) subregional, regional or international organizations competent in the subject must actively participate in the start-up of these projects.

6. The main activities involved in the implementation of large-scale afforestation-reforestation projects are as follows:

(a) Making firm financial arrangements for each project, and making available to it the necessary financial resources as stipulated in the operational project;

(b) Establishing a start-up committee for each project comprising managers, planners and technicians representing the country or countries benefiting from the project, the cooperating agency and the donor of funds;

(c) Establishing a committee to assess the progress of activities under each project, comprising specialists from the cooperating agency and the donors.